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TWO NEW SPECIES OF METRODORIDAE (ORTHOPTERA) FROM THE NUJIANG GORGE, YUNNAN, CHINA

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Abstract In the present paper, two new species of Metrodoridae, *i. e.*, *Systolederus oculatus* sp. nov. and *Bolivaritettix gaoligongshanensis* sp. nov., are described. The type specimens are deposited in the Museum of Southwest Forestry University and Institute of Zoology, Shaanxi Normal University.

***Systolederus oculatus* sp. nov.** (Figs 1 – 3)

This new species is allied to *S. guangxiensis* Zheng *et* Jiang, 1998 and *S. emeiensis* Zheng, 1998, but differs from both in: 1) upper margin of pronotoum straight in profile; 2) hind process of poronotum reaching the top of hind tibia; 3) hind margin of subgenital plate of female with three teeth; 4) hind tibia black, with light ring. It differs from *S. guangxiensis* in: 1) the middle of anterior margin of pronotum slightly concave; 2) without a pair short longitudinal keels between shoulders. It differs from *S. emeiensis* in: 1) midkeel of pronotum distinctly the whole length; 2) hind wing reaching the top of hind process.

Length of body: ♂ 11.0 – 12.5 mm; ♀ 15.0 – 15.5 mm. Length of pronotuom: ♂ 10.5 – 12.5 mm; ♀ 13.5 – 14.0 mm. Width of shoulders: ♂ 2.0 – 2.5 mm; ♀ 3.0 – 3.1 mm. Length of hind femur: ♂ 4 – 5 mm; ♀ 4 – 5 mm.

Holotype ♂, Yunnan, Liuku (25° 50′ N, 98°51′E; alt. 770 m), 17 May 2011, collected by LI Hui-Jun *et al.* Paratypes: 4 ♂ ♂, 4 ♀ ♀, same data as holootype; 7 ♂ ♂, 2 ♀ ♀, Yunnan, Liuku, alt. 730 – 750 m, 16 May 2011, collected by LI Hui-Jun *et al.*

Etymology. The specific name is derived from the Latin "*ocula*".

***Bolivaritettix gaoligongshanensis* sp. nov.** (Figs 4 – 8)

This new species is allied to *B. juwanshanensis* Zheng, 2005 and *B. lativertex* Brunner von Wattenwyl, 1893, but differs from both in: 1) width of frontal ridge narrower than the width of basal segment of antenna; 2) hind process reaching the two third of hind tibia; 3) upper midkeel of hind femur with three projections; 4) width of midfemur narrower than the width of tegmina. 5) humeral angle of pronotum rounded. It differs from *B. juwanshanensis* in: 1) width of vertex 1.5 times that the width of an eye; 2) upper margin of pronotum nearly straight in profile; 3) hind wing reaching the top of hind process.

Length of body: ♂ 10 – 11 mm; ♀ 13.5 – 14.0 mm. Length of pronotuom: ♂ 13.0 – 15.5 mm; ♀ 15 – 20. mm. Length of hind femur: ♂ 6.0 – 6.3 mm; ♀6.5 – 10.0 mm.

Holotype ♀, Yunnan, Lushui (26°5′N, 98°5′E; alt. 940 m), 27 Mar. 2011, collected by LI Hui-Jun. Paratypes: 6 ♂ ♂, 12 ♀ ♀, same data as holotype; 1 ♂, 2 ♀ ♀, Yunnan, Lushui (25°39′N, 98°24′E; alt. 780 m), collected by WU Yu-Xi and LI Jian-Yu.

Etymology. The specific name is derived from the type locality "Gaoligongshan".

Key words Orthoptera, Metrodoridae, new species, China.

中国云南省怒江峡谷短翼蚱科二新种（直翅目）

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摘　要　记述采自云南省怒江峡谷地区短翼蚱科 2 新种，即突眼狭顶蚱 *Systolederus oculatus* sp. nov. 及高黎贡山波蚱 *Bolivaritettix gaoligongshanensis* sp. nov.。突眼狭顶蚱近似于广西狭顶蚱 *Systolederus guangxiensis* Zheng *et* Jiang, 1998 及峨眉狭顶蚱 *Systolederus emeiensis* Zheng, 1998。突眼狭顶蚱与两种的区别为：1）侧面观前胸背板上缘平直；2）前胸背板后突到达后足胫节顶末端；3）雌性下生殖板后缘具 3 齿；4）后足胫节黑色，具淡色环。区别于广西狭顶蚱为：1）前

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胸背板前缘中央微凹；2）肩部之间不具1对短纵隆线。其又区别于峨眉狭顶蚱为：1）前胸背板中隆线全长明显；2）后翅到达后突的顶末端。

高黎贡山波蚱近似于九万山波蚱 *Bolivaritettix juwanshanensis* Zheng, 2005 及宽顶波蚱 *Bolivaritettix lativertex* Brunner von Wattenwyl, 1893。主要区别于二者为：1）颜面隆起纵沟宽狭于触角基节宽；2）肩角圆形；3）后突到达后足胫节2/3处；4）中足股节宽狭于前翅宽；5）后足股节上侧中隆线后段具3个突起。其又区别于九万山波蚱为：1）头顶宽为1眼宽的1.5倍；2）侧面观前胸背板上缘平直；3）后翅到达后突顶末端。

关键词 直翅目，短翼蚱科，新种，中国.

中图分类号 Q969. 26

狭顶蚱属 *Systolederus* 为 Bolivar 于 1887 年建立，属模式种为 *Systiledeus haani* Bolivar, 1887，该属目前已知28种，主要分布于印度尼西亚、新几内亚、菲律滨、缅甸、印度、斯里兰卡和中国等地区，在我国已知11种，分布于广西、广东、四川、福建和西藏等省区。波蚱属 *Bolivaritettix* 为 Gunther 于 1939 年建立，属模式种为 *Bolivaritettix sculptus*（Bolivar, 1887），该属目前已知73种，主要分布于印度尼西亚、缅甸、印度和中国等地区。在我国已知54种，广泛分布于华东、华南及西南等省区。

2011年3~9月，在云南省西部的怒江峡谷地区进行蚱类昆虫调查，在采到的短翼蚱科标本中发现有狭顶蚱属及波蚱属昆虫各1新种，记述如下。新种的模式标本保存于西南林业大学标本馆和陕西师范大学动物研究所昆虫标本室。

1 突眼狭顶蚱，新种 *Systolederus oculatus* sp. nov.（图1~3）

雄性 体小型。头部极突出于前胸背板之上；头顶极狭，向前端呈尖角形突出，中隆线明显，侧缘上翻，头顶宽约为1眼宽的1/2；侧面观颜面略倾斜，颜面隆起在触角之间弧形突出，在中央单眼处凹陷，颜面隆起纵沟狭于触角基节宽。触角丝状，细长，着生于复眼下缘之间，中段1节的长度为宽度的4~5倍。复眼圆球形，极突出，复眼的下缘几与前胸背板上缘平齐；侧单眼位于复眼前缘的中部。前胸背板前缘平直，中央微凹，中隆线全长明显，侧面观背板上缘近平直；侧隆线在沟前区短，平行；肩角钝圆角形；后突长锥形，到达后足胫节末顶端；前胸背板侧片外翻，后缘具2凹陷，后角顶平截。前翅长卵形，顶末端宽圆，其宽度略宽于中足股节宽；后翅发达，到达后突末顶端。前、中足股节细长，上、下缘平直；后足股节粗短，长为宽的3.3倍，上侧中隆线密具细齿，下侧中隆线平滑，膝前齿及膝齿直角形；后足胫节外侧具刺5个，内侧具刺5个；后足跗节第1节长度为第2、3节之和，第1跗节下之三垫近等长，顶尖。下生殖板短锥形，顶钝。

表1 突眼狭顶蚱与近缘种之主要区别

Table 1. Difference between *Systolederus oculatus* sp. nov. and its allies.

	广西狭顶蚱 *S. guangxiensis*	突眼狭顶蚱，新种 *Systolederus oculatus* sp. nov.	峨嵋狭顶蚱 *S. emeiensis*
前胸背板前缘	平直	平直中央微凹	平直中央微凹
前胸背板中隆线	全长明显	全长明显	在沟前区不明显
侧面观背板上褖	在肩前波状	平直	波状
肩部之间	具1对短纵隆线	不具1对短纵隆线	不具1对短纵隆线
后突到达后足胫节	中部	末顶端	中部
后翅到达后突	末顶端	末顶端	超过后突末顶端
雌性下生殖板后缘	中央三角形突出	具三齿	中央三角形突出
后足胫节	褐色	黑色，中部具2淡色环	褐色

体黑褐色；后翅黑色；后足股节上侧、外侧及下侧均具2大黑色横斑，内侧黄褐色；后足胫节外侧黑色，中部具2黄褐色环，内侧黑色，基部具黄褐环。

雌性 体较雄性为大。产卵瓣狭长，上瓣之长为宽的4倍，上、下瓣均具细齿；下生殖板长宽近相等，后缘具3齿。其余构造与体色同雄性。

体长（从头顶到前胸背板顶端长）：♂ 11.0~12.5 mm；♀ 15.0~15.5 mm。前胸背板长：♂ 10.5~11.5 mm；♀ 13.5~14.0 mm。肩宽：♂ 2.0~2.5 mm；♀ 3.0~3.1 mm。后足股节长：♂ 4~5 mm；♀ 4~5 mm。

正模♂，云南六库（来漠河），海拔 770 m，2011-05-17，李慧俊采。副模：4♂♂，4♀♀，同正模，张雅芝、吴雨蹊采；7♂♂，2♀♀，云南六库



图 1 ~ 3 突眼狭顶蚱，新种 *Systolederus oculatus* sp. nov.
1 ~ 2. ♂ 3. ♀ 1. 侧面观（lateral view）2. 背面观（dorsal view）3. 下生殖板腹面观（subgenital plate, ventral view）

（跃进桥），海拔 730 ~ 750 m，2011-05-16，赵春贵、翟永斌采。

新种近似于广西狭顶蚱 *Systolederus guangxiensis* Zheng *et* Jiang, 1998 及峨嵋狭顶蚱 *Systolederus emeiensis* Zheng, 1998，主要区别见表 1。

词源：新种种名源自拉丁词“*ocula*”为名

2 高黎贡山波蚱，新种 *Bolivaritettix gaoligongensis* sp. nov.（图 4 ~ 8）

雌性 体小型。头部不突出于前胸背板之上；头顶宽为 1 眼宽的 1.5 倍，前缘平直，不突出于复眼之前，中隆线明显，侧缘略反折；侧面观头顶与颜面呈钝圆形，在触角之间弧形突出，在侧单眼前明显凹陷，颜面隆起在触角之间部分的宽度明显狭于触角基节宽。触角丝状，粗短，着生于复眼下缘之间，中段 1 节的长度为宽度的 2 倍。复眼圆球形，突出，侧单眼位于复眼前缘上 1/3 处。前胸背板背面具稀疏瘤突，前缘平直，中隆线全长明显，侧面观背板上缘近平直，微波状；沟前区侧隆线长，向后收缩；肩角钝圆形；后突长锥形，到达后足胫节 2/3 处；前胸背板侧片外翻，后缘具 2 凹陷，后角顶平截，中央微凹。前翅长卵形，顶狭圆，后翅发达，到达后突末顶端。前、中足股节上、下缘平直，中足股节的宽度狭于前翅宽；后足股节粗壮，上侧中隆线密具细齿，在后段具 3 个突起，膝前齿及膝齿直角形，下侧中隆线上亦具 1 列小突起；后足胫节外侧具刺 10 ~ 11 个，内侧具刺 8 个；后足跗节第 1 节长于第 3 节，第 1 跗节下之三垫依次渐大，顶钝。产卵瓣狭长，上瓣之长为宽的 4 倍，上、下瓣均具细齿；下生殖板长大于宽，后缘具 3 齿，中央具隆脊。

体黄褐至暗褐色；触角黄褐色，端部节色较深；后翅暗褐色；后足胫节褐色。

雄性 体较雌性为小。下生殖板长锥形其余构造与体色同雌性。

体长：♂ 10 ~ 11 mm；♀ 13.5 ~ 14.0 mm。前胸背板长：♂ 13.0 ~ 15.5 mm；♀ 15 ~ 20 mm。后足股节长：♂ 6.0 ~ 6.3 mm；♀ 6.5 ~ 10.0 mm。

正模♀，云南泸水，大兴地维垃大坝村，海拔



图4～8 高黎贡山波蚱，新种 *Bolivaritettix gaoligongshanensis* sp. nov.
4, 7. ♀ 5～6, 8. ♂ 4～5. 侧面观（lateral view）6. 背面观（doesal view）7. 下生殖板腹面观（subgenital plate, ventral view）8. 下生殖板侧面观（subgenital plate, lateral view）

940 m，2011-03-27，李慧俊采。副模：6♂♂，12♀♀。其它同正模，李慧俊、吴雨蹊、翟永斌采；17♂♂，2♀♀，云南泸水（上江），海拔780 m，2011-07-27，吴雨蹊、李建余采。

新种近似于九万山波蚱 *Bolivaritettix juwanshanensis* Zheng, 2005，及宽顶波蚱 *Bolivaritettix lativertex* Br.-W., 1893，主要区别见表2。

词源：新种种名源自模式产地“高黎贡山 Gaoligonogshan”。

表2 高黎贡山波蚱与近缘种之主要区别

Table 2. Difference between *Bolivaritettix gaoligongshanensis* sp. nov. and its allies.

	九万山波蚱 *B. juwanshanensis*	宽顶波蚱 *B. lativertex*	高黎贡山波蚱，新种 *Bolivaritettix gaoligongensis* sp. nov.
头顶宽为1眼宽的	1.2倍	1.4～1.6倍	1.5倍
颜面隆起纵沟宽	等于触角基节宽	宽于触角基节宽	狭于触角基节宽
侧面观背板上缘	明显波状	平直	近平直
肩角	钝角形	钝角形	圆形
后突到达后足胫节	1/3处	顶端	2/3处
后翅	超过后突末顶端	到达后突末顶端	到达后突末顶端
中足股节宽	与前翅等宽	与前翅等宽	狭于前翅宽
后足股节上侧中隆线	平滑	具细齿	后段具3个突起

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